



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: **PALLACH, et al.** Examiner: **Jennifer A. Boyd**  
Application No.: **10/804,556** Confirmation No.: **7442**  
Filing Date: **March 19, 2004** Art Unit: **1771**  
Customer No.: **23280** Attorney Docket: **331.1051**  
Title: **COVER LAYER FOR ENGINE COMPARTMENT LINING**

Mail Stop: APPEAL BRIEF – PATENTS  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

April 10, 2007

**APPELLANT'S BRIEF UNDER 37 C.F.R. § 41.37**

Sir:

Appellant submits this brief for the consideration by the Board of Patent Appeals and Interferences (the "Board") in support of his appeal of the Final Rejection dated September 27, 2006 in this application. The statutory fee of \$500.00 for filing an appeal brief is paid concurrently herewith.

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**I. REAL PARTY IN INTEREST**

The real party in interest is Carl Freudenberg KG, a corporation having a place of business in Weinheim, Germany.

## II. RELATED APPEALS AND INTERFERENCES

Appellant, his legal representatives, and assignee are not aware of any appeal, interference or judicial proceeding that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

### III. STATUS OF CLAIMS

Claims 1 to 10, and 16 to 18 are pending. Claims 1 to 10, and 16 to 18 have been finally rejected as per the Final Office Action dated September 27, 2006. Claims 11 to 15 have been canceled without prejudice.

The rejection to claims 1 to 10, and 16 to 18 thus is appealed. A copy of appealed claims 1 to 10, and 16 to 18 is attached hereto as Appendix A.

#### IV. STATUS OF AMENDMENTS AFTER FINAL

No amendments to the claims were filed after the final rejection. An advisory action was mailed on January 25, 2007. A Notice of Appeal was filed on February 8, 2007 and received by the U.S.P.T.O. on February 12, 2007.

## **SUMMARY OF THE CLAIMED SUBJECT MATTER**

Independent claim 1 recites an engine compartment lining cover layer comprising:

at least one binder-bonded nonwoven engine compartment lining cover layer (i.e. Fig. 1, i.e. specification, see paragraph [0010], page 3, lines 1 to 2), the nonwoven layer being bonded using a binder (i.e. Fig. 1; i.e. specification, see paragraph [0010], page 3, lines 1 to 2), having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C (i.e. specification, see paragraph [0010], page 3, lines 2 to 3).

Independent claim 16 recites: “an engine compartment lining comprising:

at least one binder-bonded nonwoven thermoset engine compartment lining cover layer (i.e. Fig. 1, i.e. specification, see paragraph [0010], page 3, lines 1 to 2), the nonwoven layer being bonded using a binder (i.e. Fig. 1, i.e. specification, see paragraph [0010], page 3, lines 1 to 2) having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C (i.e. specification, see paragraph [0010], page 3, lines 2 to 3); and

a substrate made of reclaimed wool (i.e. specification, see paragraph [0012], page 4, lines 17 to 21 and paragraph [0017], page 6, lines 1 to 4).

## V. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1 to 6 and 8 rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Costantino, EP 1069232; **(2)** Claims 1 and 3 to 6 rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Horrocks, U.S. Patent No. 5,645,926; **(3)** Claims 1, 3, 4, 8 and 10 rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Sumii, U.S. Patent No. 5,217,799; **(4)** Claims 1 to 4, 8 and 9 rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Reinhard et al., GB 1,054,877; **(5)** Claims 16 to 18 rejected under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Utsumi, U.S. Publication No. 2005/0249931; and **(6)** Claim 7 rejected under 35 U.S.C. §103(a) as being unpatentable over Horrocks et al. in view of an article by Liu, et al.

## VI. ARGUMENTS

### A. Rejections under 35 U.S.C. §§102(b), (e) and 103(a)

#### Costantino- Rejection of Claims 1 to 6 and 8

Claims 1 to 6 and 8 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Costantino, EP 1069232.

Claim 1 recites an engine compartment lining cover layer comprising:

at least one binder-bonded nonwoven engine compartment lining cover layer, the nonwoven layer being bonded using a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C.

Costantino discloses an artificial leather type textile being made fireproof. Costantino discloses “the product being treated for fireproofing is subjected to heating to dry the product and ensure the cross-linking of the binder.” Costantino thus provides an entirely cross-linked binder.

Thermosetting occurs via a cross-linking process, and when fully cross-linked or cured, a thermoset plastic is in a strong form, for example, in a molded shape such as an engine compartment. See paragraph [0017] of the present application, for example.

In Costantino, the binder clearly does NOT thermoset, “the product being treated for fireproofing is subjected to heating to dry the product and ensure the cross-linking of the binder.”

When cured or cross-linked, the fabric material in Costantino is a flexible leather-like fabric and the binder does not thermoset. The fabric remains thermoplastic. The exact materials in Costantino are not the same as the present invention and are not combined or processed in the same manner and clearly do not have a binder having “a thermosetting behavior above 200°C” because the fabric remains flexible even when it is cross-linked. Any further heat or other treatment would not thermoset the binder in Costantino, as cross-linking is already completed. See paragraph [0017], for example, where pre-cross linking occurs in the present invention.

Costantino does not teach or disclose an engine compartment lining cover layer, and in fact the use in Costantino would not lead one of skill in the art to use or imagine them for use as



engine compartment linings. There is absolutely no teaching or disclosure in Costantino of an engine compartment lining cover layer, as recited in claim 1.

Withdrawal of the rejections to claim 1 and the dependent claims is respectfully requested.

Costantino- Rejection of Claim 2 Argued Separately

With further respect to Claim 2, Claim 2 recites that “the binder condenses upon crosslinking and is pre-crosslinked at a temperature of up to 200°C and cures at a temperature above 200°C.”

There is absolutely no teaching or disclosure in Costantino that the binder condenses upon crosslinking and is pre-crosslinked at a temperature of up to 200°C and cures at a temperature above 200°C., as recited in claim 2.

Withdrawal of the rejections to claim 2 is respectfully requested.

Costantino- Rejection of Claim 5 Argued Separately

With further respect to Claim 5, Claim 5 recites: “the cover layer as recited in claim 1, wherein the binder contains flame retardant agents, water repellent agents, and/or oil repellent agents.”

There is absolutely no teaching or disclosure in Costantino that the binder contains flame retardant agents, water repellent agents, and/or oil repellent agents, as recited in claim 5.

Withdrawal of the rejections to claim 5 is respectfully requested.

Horrocks et al.- Rejection of Claims 1 and 3 to 6

Claims 1 and 3 to 6 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Horrocks et al., U.S. Patent No. 5,645,926.

Claim 1 recites an engine compartment lining cover layer comprising:

at least one binder-bonded nonwoven engine compartment lining cover layer, the nonwoven layer being bonded using a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C.

Horrocks et al. discloses a charred fiber structure for protective clothing and upholstery. Horrocks et al. discloses, "The composite material was then heated at 120°C for 5 minutes, to enable bonding of the intumescent/resin combination to the fibres." (See col. 10, lines 39 to 41).

Horrocks et al. does not disclose "a thermosetting behavior above 200°C." Horrocks et al. is for fire resistant materials where flexibility remains until charring. In fact, if the material in Horrocks et al. thermosets, the material would not be suitable for use as protective clothing because it would prevent movement by emergency personnel. (See col. 1 lines 14 to 19). It is clear the binder remains thermoplastic until fabric charring. (See col. 12, lines 37 to 41).

Horrocks et al. does not teach or disclose an engine compartment lining cover layer, and in fact the use disclosed in Horrocks would not lead one of skill in the art to use or imagine them for use as engine compartment linings. There is absolutely no teaching or disclosure in Horrocks of an engine compartment lining cover layer, as recited in claim 1.

Horrocks does not show or teach "a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C" as recited in claim 1. The prior art shows different variations of styrene, butadiene and/or acrylonitrile and different properties resulting therefrom. The presumption in the Office Action does not result in the claimed properties. See Horrocks et al., Sumii et al., and Reinhard et al., there is no evidence of thermosetting.

Withdrawal of the rejections to claim 1 and the dependent claims is respectfully requested.

#### Horrocks et al.- Rejection of Claim 5 Argued Separately

With further respect to Claim 5, Claim 5 recites: "the binder contains flame retardant agents, water repellent agents, and/or oil repellent agents."

There is absolutely no teaching or disclosure in Horrocks that the binder contains flame retardant agents, water repellent agents, and/or oil repellent agents, as recited in claim 5.

Withdrawal of the rejections to claim 5 is respectfully requested.

Sumii et al.- Rejection of Claims 1, 3, 4, 8 and 10

Claims 1, 3, 4, 8 and 10 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Sumii et al., U.S. Patent No. 5,217,799.

Claim 1 recites an engine compartment lining cover layer comprising:

at least one binder-bonded nonwoven engine compartment lining cover layer, the nonwoven layer being bonded using a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C.

Sumii et al. discloses car interior materials such as the ceiling. Sumii et al. discloses “The emulsion impregnated surface of the obtained non-woven fabric is laminated on web composed of a fiber made of a co-polymer of nylon-6, nylon-6, 6 and nylon-12 and is heated to 110°C to bond the non-woven fabric and the web.” (See col. 5, lines 3 to 10).

Sumii et al. does not disclose a binder having “thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C” as it appears to bond at 110°C and have shape stability. Thus, the material is no longer thermoplastic above the bonding temperature, 110°C. (See col. 5 lines 3 to 17).

Sumii et al. does not teach or disclose an engine compartment lining cover layer, and in fact the use disclosed in Sumii, et al. would not lead one of skill in the art to use or imagine them for use as engine compartment linings. There is absolutely no teaching or disclosure in Sumii et al. of an engine compartment lining cover layer, as recited in claim 1.

Sumii et al. does not show or teach “a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C” as recited in claim 1. The prior art shows different variations of styrene, butadiene and/or acrylonitrile and different properties resulting therefrom. The presumption in the Office Action does not result in the claimed properties. See Horrocks et al., Sumii et al., and Reinhard et al. There is no evidence of thermosetting.

Withdrawal of the rejections to claim 1 and the dependent claims is respectfully requested.

#### Reinhard et al.- Rejection of Claims 1 to 4, 8 and 9

Claims 1 to 4, 8 and 9 were rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Reinhard et al., GB 1,054,877.

Claim 1 recites an engine compartment lining cover layer comprising:

at least one binder-bonded nonwoven engine compartment lining cover layer, the nonwoven layer being bonded using a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C.

Reinhard et al. discloses a carded fleece. Reinhard et al. discloses self-extinguishing bonded non-woven fabrics. Reinhard et al. does not disclose “a thermosetting behavior above 200°C.” The impregnated non-woven fabric in Reinhard is “dried for three minutes at 110°C and for another three minutes at 150°C. (See page 2, lines 69 to 71). The material in Reinhard et al. is used as furnishing fabrics or upholstery fabrics and remains flexible. The material does not thermoset.

Reinhard et al. does not teach or disclose an engine compartment lining cover layer, and in fact the uses disclosed in Reinhard et al. would not lead one of skill in the art to use or imagine them for use as engine compartment linings. There is absolutely no teaching or disclosure in Reinhard et al. of an engine compartment lining cover layer, as recited in claim 1.

Reinhard et al. does not show or teach “a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C” as recited in claim 1. The prior art shows different variations of styrene, butadiene and/or acrylonitrile and different properties resulting therefrom. The presumption in the Office Action does not result in the claimed properties. See Horrocks et al., Sumii et al., and Reinhard et al. There is no evidence of thermosetting.

Withdrawal of the rejections to claim 1 and the dependent claims is respectfully requested.

#### Reinhard et al.- Rejection of Claim 2 Argued Separately

With further respect to Claim 2, Claim 2 recites: “the binder condenses upon crosslinking and is pre-crosslinked at a temperature of up to 200°C and cures at a temperature above 200°C.”

There is absolutely no teaching or disclosure in Reinhard, et al. that the binder condenses upon crosslinking and is pre-crosslinked at a temperature of up to 200°C and cures at a temperature above 200°C, as recited in claim 2.

Withdrawal of the rejections to claim 2 is respectfully requested.

#### Utsumi – Rejection of Claims 16 to 18

Claims 16 to 18 were rejected under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Utsumi, U.S. Publication No. 2005/0249931.

Utsumi discloses a laminate of nonwoven fabrics and an automotive internal trim panel, such as a headlining, a rear package tray, a door trim, a floor insulator a trunk trim or a dashboard insulator. Utsumi discloses “one or more rigid layers of the entanglement-based nonwoven fabric.” The nowoven used as the rigid layer is passed through a “calendar at an ordinary temperature” in Sample 1, “through a calendar at 100°C” in Sample 2, “through a calendar at 150°C” in Sample 3, and “through a calendar 180°C” in Sample 4.

Claim 16 recites an engine compartment lining comprising:

at least one binder-bonded nonwoven thermoset engine compartment lining cover layer, the nonwoven layer being bonded using a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C; and  
a substrate made of reclaimed wool.

The nonwoven layer in Utsumi is rigid at an ordinary temperature, 100°C, 150°C and 180°C, thus the nonwoven is no longer thermoplastic. The nonwoven, in Utsumi, thus, is not bonded using a binder having a “thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C” as claimed. Utsumi shows rigid behavior in this range.

Utsumi also does not teach or disclose an engine compartment lining cover layer, and in fact the uses disclosed in Utsumi would not lead one of skill in the art to use or imagine them for use as engine compartment linings. There is absolutely no teaching or disclosure in Utsumi of an engine compartment lining cover layer, as recited in claim 16.

Withdrawal of the rejection to claim 16 is respectfully requested.

#### Utsumi – Rejection of Claim 17: Argued Separately

With further respect to claim 17, claim 17 recites “the cover layer is attached to a substrate made of reclaimed wool.” Utsumi does not disclose reclaimed wool.

Withdrawal of the rejections to dependent claims 17 is respectfully requested.

#### Utsumi – Rejection of Claim 18: Argued Separately

With further respect to claim 18, claim 18 recites “the binder is a foam binder.” Utsumi does not disclose a foam binder. It is not true that binder form does not affect the product and there is no motivation provided to modify the reference.

Withdrawal of the rejections to dependent claims 18 is respectfully requested.

#### Horrocks et al., in view of an article by Liu, et al.- Rejection of Claim 7 Argued Separately

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Horrocks et al., in view of an article by Liu, et al.

Claim 7 recites “the cover layer as recited in claim 6, wherein the flame retardant is a nitrogen-containing phosphonic acid derivative having an elemental content of  $\geq 10$  wt. % of nitrogen and  $\geq 5$  wt. % of phosphorous.”

Horrocks et al. discloses a charred fiber structure for protective clothing and upholstery. Horrocks et al. discloses, “The composite material was then heated at 120°C for 5 minutes, to enable bonding of the intumescent/resin combination to the fibres.” (See col. 10, lines 39 to 41).

Liu, et al. discloses a newly synthesized phosphorus containing oxirane, bis-(3-glycidyoxy) phenylphosphine oxide, BGPPPO. See Liu, page 614, Column 2, section entitled “Synthesis of bis-(3-glycidyoxy) phenylphosphine oxide, BGPPPO.” Further curing of BGPPPO with diamine curing agents, dicyanodiamide (DICY), 4,4'-diaminodiphenylmethane (DDM), and 4,4'-diaminodiphenylsulfone (DDS), respectively resulted in several phosphorylated epoxy resins. See Liu et al., page 614, second sentence of section entitled “Reagents.” The high char yields as well as the limited oxygen index (LOI) values of the BGPPPO-based resins confirmed the effectiveness of phosphorus-containing epoxy resins as flame retardants. See Liu, page 621, column 1, lines 4 to 6.

Neither Horrocks nor Liu teach or disclose an engine compartment lining cover layer, and in fact the uses disclosed in Horrocks would not lead one of skill in the art to use or imagine them for use as engine compartment linings. Therefore, there is no reason or motivation for one skilled in the art to combine the charred fiber structure for protective clothing and upholstery of Horrocks with the BGPPO-based resins of Liu, et al.


Withdrawal of the rejection to claim 7 is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is in condition for allowance. Favorable consideration of this appeal brief is respectfully requested.

Respectfully submitted,

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## **APPENDIX A:**

### **APPEALED CLAIMS 1 to 10 and 16 to 18 of U.S. APPLICATION SERIAL NO. 10/804,556**

Claim 1 (previously presented): An engine compartment lining cover layer comprising:  
at least one binder-bonded nonwoven engine compartment lining cover layer, the nonwoven layer being bonded using a binder having a thermoplastic behavior in the temperature range of 20° to 200°C and a thermosetting behavior above 200°C.

Claim 2 (previously presented): The cover layer as recited in claim 1, wherein the binder condenses upon crosslinking and is pre-crosslinked at a temperature of up to 200°C and cures at a temperature above 200°C.

Claim 3 (original): The cover layer as recited in claim 1, wherein the binder is selected from the group of the acrylic acid copolymers or ter-polymers with styrene, butadiene, and/or acrylonitrile.

Claim 4 (original): The cover layer as recited in claim 3, wherein the binder is selected from the group of the acrylic acid copolymers with styrene.

Claim 5 (original): The cover layer as recited in claim 1, wherein the binder contains flame retardant agents, water repellent agents, and/or oil repellent agents.

Claim 6 (original): The cover layer as recited in claim 1, wherein the nonwoven layer includes halogen-free and heavy metal-free phosphorous compounds containing nitrogen as a flame retardant.

Claim 7 (original): The cover layer as recited in claim 6, wherein the flame retardant is a nitrogen-containing phosphonic acid derivative having an elemental content of  $\geq 10$  wt. % of nitrogen and  $\geq 5$  wt. % of phosphorous.

Claim 8 (original): The cover layer as recited in claim 1, wherein the nonwoven layer includes rayon fibers, polyester fibers, cellulose fibers, polyamide fibers, polyolefine fibers, and/or pre-oxidized polyacrylonitrile fibers.

Claim 9 (original): The cover layer as recited in claim 1, wherein the cover layer has a mass per unit area of  $20 \text{ g/m}^2$  to  $200 \text{ g/m}^2$ , and the nonwoven layer includes fibers in a weight ratio between the fibers employed per square meter and the binder employed per square meter being in the range of 0.5:1 to 2:0.5.

Claim 10 (original): The cover layer as recited in claim 1, further comprising a coating on one side of the nonwoven layer, the coating including a hot-setting adhesive made of a polyolefin resin, polyester resin, phenolic resin, or melamine resin.

Claim 16 (previously presented): An engine compartment lining comprising:  
at least one binder-bonded nonwoven thermoset engine compartment lining cover layer, the nonwoven layer being bonded using a binder having a thermoplastic behavior in the temperature range of  $20^\circ$  to  $200^\circ\text{C}$  and a thermosetting behavior above  $200^\circ\text{C}$ ; and  
a substrate made of reclaimed wool.

Claim 17 (previously presented): The cover layer as recited in claim 1 wherein the cover layer is attached to a substrate made of reclaimed wool.

Claim 18 (previously presented): The cover layer as recited in claim 1 wherein the binder is a foam binder.

## **APPENDIX B**

### Evidence Appendix under 37 C.F.R. §41.37 (c) (ix):

No evidence pursuant to 37 C.F.R. §§1.130, 1.131 or 1.132 and relied upon in the appeal has been submitted by appellants or entered by the examiner.

## **APPENDIX C**

### Related proceedings appendix under 37 C.F.R. §41.37 (c) (x):

As stated in "II. RELATED APPEALS AND INTERFERENCES" of this appeal brief, appellants, their legal representatives, and assignee are not aware of any appeal or interference that directly affects, will be directly affected by, or will have a bearing on the Board's decision in this appeal.

3. EXTENSION OF TIME

The proceedings herein are for a patent application and the provisions of 37 C.F.R.1.136 apply.

Appellants believe that no extension of time is required. However, this conditional petition is being made to provide for the possibility that Appellants have inadvertently overlooked the need for a petition and fee for extension of time.

4. TOTAL FEE DUE

The total fee due is:

Notice of Appeal fee \$500.00

**TOTAL FEE DUE \$500.00**

5. FEE PAYMENT

The Commissioner is authorized to charge any necessary fee associated with the filing of this Notice of Appeal and any other fee due to Deposit Account No. 09-0428 (Diebold Self-Service Systems).

6. FEE DEFICIENCY

If any additional time extension and/or fee is required, this is a request therefor and to charge Deposit Account No. 09-0428 (Diebold Self-Service Systems).

If any additional fee for claims is required, charge Deposit Account No. 09-0428 (Diebold Self-Service Systems).

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SIGNATURE OF PRACTITIONER

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